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**ADVANCED SCIENCE & PARTNERSHIPS  
FOR INTEGRATED RESOURCE  
DEVELOPMENT PROJECT  
STAKEHOLDER MAPPING REPORT**

March 2016

This publication was produced for review by the United States Agency for International Development. It was prepared by Mendez England & Associates.

## **Advanced Science & Partnerships for Integrated Resource Development**

**March 2016**

**Contract No.AID-OAA-I-14-00070/AID-111-TO-15-00001**

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## List of Acronyms

AAB	Ararat Artesian Basin
ADB	Asian Development Bank
ASPIRED	Advanced Science and Partnerships for Integrated Resource Development
CEW	Clean Energy and Water
EIMC	Environmental Impact Monitoring Center
EPIRB P	Environmental Protection of International River Basins Project
ERGIS	Environmental Research and GIS NGO
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
GIS	Geographic Information System
GOA	Government of Armenia
HMC	Hydrogeological Monitoring Center
ICARE	International Center for Agribusiness Research and Education
JICA	Japanese International Cooperation Agency
MOA	Ministry of Agriculture
MNP	Ministry of Nature Protection
MES	Ministry of Emergency Situations
MTA	Ministry of Territorial Administration
NGO	Non-Governmental Organization
PEER	Partnerships for Enhanced Engagement in Research
SCADA	Supervisory Control and Data Acquisition
SCWS	State Committee on Water Systems
TO	Task Order
WRMA	Water Resources Management Agency
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
USGS	United States Geological Survey
WB	World Bank
WSPIU	Water Sector Projects Implementation Unit

## 1. Stakeholder Coordination Objectives

The Advanced Science and Partnerships for Integrated Resource Development ([ASPIRED](#)) Project was tasked by USAID to promote coordination across the stakeholders involved in the resource management activities and particularly groundwater resources in the Ararat Valley.

A strong emphasis is placed on building partnerships with [USAID Global Development Lab](#) with its GeoCenter, [Jefferson Science Fellowship Program](#), the [US Geological Survey](#) (USGS), the donor organization, other USAID-funded projects and the private sector to promote better water resource monitoring, planning, and sustainable management and to pilot innovative water and energy efficiency technologies. The team is also involving local NGOs and advocacy groups, among them being the fish farmers' associations and environmental and rural development NGOs, into the activities of its tasks.

While the collaboration with the [International Center for Agribusiness Research and Education \(ICARE\)](#), USGS and the Global Development Lab and the future PURE project is quite straightforward, coordination with other donors is also perceived to be increasingly important given the cutting-edge issue of the preservation of the groundwater resources in the Ararat Valley. Besides, many donors and projects are now active in the water resource sector and it was important to understand who does what and where in order to avoid overlaps and understand the gaps. Leveraging resources, knowledge and experience of others will not only allow for better coordination among the donor organizations, but also set the basis for the implementation of joint activities and reducing duplication of efforts and eventually amplifying the impact on the target sector.

### 1.2 Donor Engagement in the Ararat Valley

At the beginning of the project, the ASPIRED Project team met with the major donors and donor-led projects as well as local stakeholders to introduce the new ASPIRED project and to gain understanding of the overall level of the donor's technical assistance to the Government of Armenia on addressing the issue of the groundwater resources.

This section summarizes the results of the donor meetings conducted by the team at the inception phase of the ASPIRED Project and provides the mapping of intervention that may be complementary to the activities of the ASPIRED Project.

The list of potential stakeholders contacted:

- [KfW](#)
- [GIZ](#)
- [Food and Agriculture Organization \(FAO\)](#)
- [Japanese International Cooperation Agency \(JICA\)](#)
- [United Nations Development Program/Global Environment Facility \(UNDP/GEF\) Small Grants Programme](#)
- [Asian Development Bank \(ADB\)](#)
- European Union (EU) Projects in Armenia related to the water sector, particularly

“Environmental Protection of International River Basins” Project and the Twinning Project “Strengthening the National Statistical System of Armenia”

Ararat Valley and its groundwater resources are not widely covered by the donor’s technical assistance in the way to be addressed by the ASPIRED project. There are no major overlaps or duplication of efforts in the specific areas, in which the ASPIRED project is planned to operate by its Task Order. For the two contacted organizations – JICA and GIZ – the Ararat Valley was totally out of their focus area.

Over the recent period, the donor intervention has been primarily covering the large-scale infrastructure issues, including rehabilitation of reservoirs<sup>1</sup> and upgrade of their infrastructures, irrigation and drinking water supply and promoting regional dialogue and cooperation around transboundary water issues<sup>2</sup>. The World Bank funds implementation of the Irrigation System Enhancement Project which rehabilitates irrigation infrastructures in selected locations, including Ararat and Armavir regions. Water Sector Projects Implementation Unit (WSPIU) functioning under the State Committee of Water Systems (SCWS) of the Ministry of Agriculture (MOA) of Armenia is an implementing entity for the Project. Among its activities are rehabilitation of canals, switching from pumping to gravity flow irrigation, strengthening of WUAs and installation of SCADA system on observation points on the main canal and intake points<sup>3</sup>.

Based on the meeting with Zara Chatinyan, the KfW Local Representative in Armenia, the rehabilitation of Kaps Reservoir is being initiated by the KfW, to be preceded by the feasibility study and assessment of surface and groundwater resources. This work will also be accompanied with the installation of SCADA monitoring system on all water abstraction points from surface water and groundwater resources that are used for irrigation purposes. Since this work will cover Akhuryan river basin area only, it has very little or almost no overlap with the Ararat Artesian Basin, where 10 SCADA monitoring systems will be installed by the ASPIRED Project in the water abstraction points in fish farms. The assessment was intended to start in September of 2015, but its most likely start date was 2016, with total duration of 12-18 months. Implementation of the second phase (longer-term objective) may start in parallel to the feasibility assessment, and expected to last about 7 years.

One of the largest donors – ADB – is engaged into rehabilitation of the drinking water network in Ararat and Armavir marzes. The project will also close abandoned drinking water wells falling within the service area of the utility operator Armenian Water and Sewerage Company. As it has been emphasized during the meeting with the ASPIRED team, ADB would also promote unification of the real estate cadaster and water cadaster into a single GIS-

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1 Kaps, Selav-Mastara and Vedi reservoirs by KfW, Kuwait Fund for Arab Economic Development and the French AFD, respectively. Source: <http://hetq.am/eng/news/58147/pools-of-wealth-part-2-armenia-begins-to-dam-the-waters-flowing-to-azerbaijan.html>;

2 Project on the management and regional collaboration on transboundary waters was funded by the UNDP/GEF, EU and European Commission, OECD. Source: [www.kura-aras.org](http://www.kura-aras.org)

<sup>3</sup> Source: [www.worldbank.org](http://www.worldbank.org)

based database. The ASPIRED will continue engaging into the dialogue with ADB to follow-up on this process and be abreast of developments.

The team also met with the representative of the European Union's Twinning Programme for Armenia, one of the components of which focuses on water accounts of the country. It has been agreed that the team would be involved in the stakeholder meetings and collaborate on the data component and information exchange to complement each other's efforts.

Another EU initiative is the "Environmental Protection of International River Basins" Project (EPIRBP), the activities of which are closely aligned with the USAID-funded water projects in Armenia – the former Clean Energy and Water Program and the current ASPIRED project. In fact, they work with the same government institutions which are also the stakeholders of the ASPIRED project within the [Ministry of Nature Protection](#) (MNP) and MOA and [Ministry of Emergency Situations](#) (MES). Among other efforts aimed at facilitating compliance to the requirements of the Water Framework Directive, the project initiated development of the Basin Management Plans for Akhuryan and Metsamor River Basins and launched the new groundwater monitoring well in Aknashen village of Ararat Valley equipped with modern electronic water level temperature and conductivity meters and telemetric station for data transfer to the databases of the [Hydrogeological Monitoring Center](#) (HMC). About a year ago, the EU project piloted the installation of three SCADA systems in the fish farms in the Metsamor river basin. Real-time water abstraction data is transferred to the water use permitting division of the WRMA, Akhuryan BMO and SEI. The datasets are also available for the fish farmers. Since the EU paid for the data storage till May 2016, it would be interesting observation and lesson learned for the ASPIRED project as to how the responsible government institutions would handle the data and further use of SCADA system when the EU payment term expires. During the meeting, the EU project team was committed to sharing all the data and lessons learned with the ASPIRED team.

The FAO is currently engaged into the project in collaboration with the MOA which overlaps with the technology components of the ASPIRED project, namely redesign and reconstruction of a fish farm in the vicinity of Sayat-Nova village, Ararat marz. At the moment of our meeting with the FAO in-country team, the initial design of the fishery was underway, pending cost estimates. While both projects had different time frames for their pilot projects<sup>4</sup> and different budgets, the experience of FAO may be useful in terms of understanding what works and what doesn't work in the recirculation system, and why. The ASPIRED technical team is in regular contact with the local coordinator for FAO from the Ministry of Agriculture and will visit the fish farm upon completion of the construction.

A potential partner for the ASPIRED Project for the implementation of the demonstration project at fish farm is UNDP/GEF Small Grants Programme, via its grantee to Environmental Research and GIS Center (ERGIS) NGO. The agreement was reached with the UNDP/GEF Small Grants Programme, on co-financing of the irrigation project at Hayanist village from

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<sup>4</sup> The installation of technologies by the ASPIRED is anticipated to begin in the second year, while FAO planned to begin construction early in 2016

drainage water of the nearby fish farm. The project concept will be sent to USAID for approval in April 2016.

Generally, coordination across donors is a platform for information exchange, joint projects and initiatives, and share of responsibilities. It can be a common process of performance monitoring and evaluation on agreed common indicators that determine the success. However, it necessitates strong government capacity to lead the development activities in the country and to push forward donor coordination. Donor coordination can be achieved through dialogue with the donors on policies, strategies, and priorities of the government. In the context of resource management, the core ministry to assume such a role is the Ministry of Nature Protection which should establish the framework for the dialogue and interaction between the donors on priority areas.

### 1.3 Local Stakeholders

The local niche of the stakeholders involved in the management, monitoring, research and use of the groundwater resources of the Ararat Valley includes the government sector, research institutions, fish farming industry and the civil sector.

**Government:** At the government level, the ASPIRED Project considers the MNP with its agencies - the [Water Resources Management Agency](#) (WRMA) and its BMOs, the Hydrogeological Monitoring Center (HMC), State Environmental Inspectorate (SEI) and the [Environmental Impact Monitoring Center](#) (EIMC) and other divisions of the MNP and WRMA – as the primary stakeholder and ally of the project. These organizations are mandated to perform the management, supervision and monitoring of the groundwater resources, starting from planning, issuance of the water use permits, compliance monitoring, control over the use of wells, identification, liquidation of illegal or abandoned wells, monitoring of the water quality, etc. To improve management of water resources, the MNP initiated development of the Ararat Basin Management Plan, which was adopted by the Government of Armenia in March 2016. The technical assistance to the MNP was started under the USAID-funded Clean Energy and Water Project and continued through the ASPIRED project. The legacy of the ASPIRED will be passed on to the MNP and the WRMA upon completion of the project. Currently, the HMC is the ASPIRED's sub-contractor for the implementation of the inventory of wells in the Ararat Valley.

Important stakeholders for the ASPIRED Project are also the Ministry of Agriculture, including the State Committee on Water Systems and the Ministry of Emergency Situations with the [State Hydrometeorological and Monitoring Service SNCO](#). The ASPIRED Project will coordinate the data on meteorology, hydrology and climate change required for the development of the DSS on the Ararat Valley with the Hydromet Service.

The MOA assigned the focal point – Mr. Tigran Aleksanyan, the Head of the Fish-Breeding Division, who facilitated meetings of the ASPIRED Project team with JICA and FAO and was involved into the work of the Task Force group on optimization of the water use fees for fisheries. The State Committee on Water Systems is the coordinating unit for the National Water Policy Dialogue. The meetings take place twice a year and present an excellent framework for information sharing amongst the stakeholders and donor-led projects in the water sector.



**Local Communities:** Local communities of Ararat and Armavir region bear the negative influences of the depletion of groundwater resources in the Valley. Some 30 communities have been long confronting the lack of drinking and irrigation water as per the findings of the Assessment Study of the Groundwater Resources in the Ararat Valley. Projects on improvement access to drinking water in the communities of Armavir region have been implemented within the framework of the CEW Project, by benefitting thousands of beneficiaries. The ASPIRED project team explored the potential of channeling used water from the fisheries to irrigate nearby lands of the communities. Several communities are interested in these solutions, one of them is the project in Hayanist which is pending approval of the USAID. Both for irrigation and drinking water projects, the communities are the full parties to the project and the respective commitment letters on sharing the responsibilities are signed with the local municipalities.

**Public Sector:** In addition, the issue of the depleting groundwater resources in the Ararat Valley has been lately on the agenda of numerous NGOs, dealing with climate change, environmental and social development issues, inspired also by the alarming findings of the USAID-sponsored [Assessment Study of the Groundwater Resources in Ararat Valley](#). Backed by the results of the study, the issue of expanding fisheries and the resulting depletion of the groundwater resources in Ararat Valley has been also increasingly covered both by the local media and NGOs such as for example [Ecolur](#) or [PanArmenian Environmental Front](#) inviting the attention of the Armenian society to the topic.

A number of NGO-led projects were and are being implemented in the communities of Ararat valley, aimed at developing [aquaponics](#)<sup>5</sup>, renovating infrastructures and raising community awareness on water issues both with private and international financing<sup>6</sup>. The ASPIRED team plans to support collaboration with NGOs as long as it fits the project mandate and helps to further the goals of the ASPIRED project. Currently, ASPIRED Project and ERGIS NGO (the latter with funding from UNDP/GEF Small Grants Programme) plan to join efforts for the implementation of the irrigation project at Hayanist village.

**Research Institutions:** Science and research institutions dealing with environmental and water issues are also concerned with the depletion of the groundwater resources in Ararat Valley, among them [ArmHydroProject Institute](#), the developer of the Ararat Basin Management Plan, the [ArmWaterProject Institute](#), the former contractor of USAID/CEW Project for the implementation of the Assessment Study on Groundwater Resources in Ararat Valley, the [Institute of Water Problems](#), which among other issues addresses the groundwater resources, and the AUA-based [Acopian Center for Environment](#). ME&A team and the Acopian Center started collaborating during the implementation of the CEW Project. Under the ASPIRED project, the team of the Acopian Center participated in the training on inventory of wells in Ararat Valley conducted by USGS on February 29-March 2, 2016. In addition, significant input was provided by the expert of the Acopian Center in the development of the Report on Assessment of Opportunities for Application of Advanced Technologies in the Fisheries. He

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<sup>5</sup> The aquaponics farm was established by [Green Age NGO](#) in Apaga village of Armavir Marz in summer 2015 and proves to be quite successful. The ASPIRED will visit the farm and use their experience while developing technology projects.

<sup>6</sup> [Armenian Women for Health and Healthy Environment NGO](#) has implemented a number of water-related projects in Ararat Marz, both including awareness building efforts, monitoring of improved water supply projects with ADB funding and implementation of [safe drinking water project in Ditak village](#). The National Water Partnership NGO implemented a project on construction of [wastewater treatment facility in Parakar community](#) with funding of the GEF Small Grants Programme.

also works with the project engineers on elaborating the concept of the experimental fishery in Ararat Valley.

Two institutions – the ArmWaterProject Institute and the ArmHydroProject Institute – are important stakeholders for the ASPIRED team. Having worked on the preparation of the Ararat Valley Groundwater Assessment Study, the ArmWaterProject Institute is also the Government counterpart in elaborating and pursuing different [policy actions](#), including also [liquidation and conservation of groundwater wells](#). ArmHydroProject Institutes was contracted by the MNP to develop the Ararat Valley Basin Management Plan, covering the Ararat Basin Management Area and the groundwater resources of the valley. The ASPIRED team attended the MNP-chaired public presentation of the Plan. The Plan for 2016-2021 along with the Program of Measures was approved by the Government in March 2016, and will guide future actions of the Government in this field. The ASPIRED will collaborate with both organizations on the data exchange related to the groundwater resource data.

The project team met with the representatives of the Institute of Water Problems and agreed to share the data on the groundwater resources. The Institute is currently calculating the water flow from the Mount Aragats to Ararat Valley and among its projects plans to calculate the water balance in the Valley. They were particularly interested in the results of the inventory of wells to be completed by the ASPIRED project. Similar work has been initiated by Institute in the past, but their data was incomplete as they had failed getting access to the fisheries for collecting the data. It's been agreed that necessary data would be shared with the Institute upon their request.

Other potential stakeholder for the ASPIRED project may be the [Institute of Aquaponics](#) in terms of their academic and field experience, if the concept on establishment of the experimental fishery is approved for implementation.

**Private Sector:** The private sector stakeholders for the ASPIRED Project include primarily the fish farming industry. With the number of fish farms decreasing due to the reduced exports and fish sales in the Russian market, fisheries are still among the largest users of the groundwater in the Ararat Valley. Fisheries are the stakeholders of the project for piloting water and energy efficiency technologies, installing SCADA systems and initiating other activities aimed at reducing the adverse pressure of the fish farming business on the artesian basin. The interests of fisheries are presented by two NGOs, the Union of Armenian Fish Farmers and the Union of Fish Producers and Exporters of Armenia, both advocating on behalf of the industry at different levels. Both NGOs are involved into the work of the interagency Task Force on optimization of the groundwater use fees.

The ASPIRED Project team will also collaborate with the local companies during the implementation of pilot projects as sub-contractors or suppliers of materials and equipment for the projects. The team recently met with the representatives of VALML LLC which provides O&M services for the wells in the Ararat Valley as well as drills and seals the wells. Since the ASPIRED Project will be sealing at least one artesian well in the Ararat Valley, the experience of this company may be useful for considering the lessons learned and the technologies and the approached used locally for the closure of wells.

The ASPIRED Project team met with the representatives of [Coca-Cola Hellenic HBC](#) to discuss possible collaboration under the public-private partnership initiated between the USAID and Coca-Cola. ASPIRED team provided the information on the likely areas of collaboration with Coca-Cola and is awaiting feedback.

The spreadsheet below presents the mapping of the stakeholders' in Ararat Valley per their focus areas. Private sector entities are not included here. In case of fisheries they are primarily users of artesian water and may be recipients of water and energy technology technologies

The spreadsheet is a functional (living) document and will be updated to reflect any changes in the stakeholder's plans and projects. New players dealing with the water resources management in the Ararat Valley will be added if any.

## 1.4 Stakeholders' Mapping in the Groundwater Resource Use, Monitoring, Data Collection and Project Implementation

Focus Areas in Ararat Valley, related to groundwater resource	Donor Organizations								<u>MNP</u>				<u>MOA</u>	<u>MES</u>	NGOs	Private sector	Research institutions
	<u>USAID</u> ( <u>ASPIRED</u> <u>ICARE</u> <u>PURE</u> )	<u>KfW</u>	<u>ADB</u>	<u>FAO</u>	<u>UNDP/GEF</u> <u>Small Grants</u> <u>Program</u>	<u>EU</u> <u>Twinning</u> <u>Program</u>	<u>EU</u> <u>EPIRBP</u>	<u>WB</u>	<u>WRMA</u>	<u>HMC</u>	<u>EIMC</u>	<u>SEI</u>	<u>SCWS/</u> <u>WSPIU</u>	<u>Hvdromet</u> <u>service</u>	Listed above	Listed above	Listed above
Policy making									x				x				
Groundwater resource data (collection, update, processing, transparency)	x					x	x		x	x	x	x		x	x		x
Basin Planning							x		x								x
Artesian water use																x	
Water use monitoring (including SCADA)	x	x					x	x	x	x		x	x			x <sup>7</sup>	x

<sup>7</sup> The ASPIRED Project will be installing 10 SCADA systems in the fisheries in Ararat valley.

[illegible]

Advocacy															X	X	
Storage, dams reconstruction		x											x				